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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,451	11/24/2003	James R. Stoy	X-0150	7117

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EXAMINER

REIFSNYDER, DAVID A

ART UNIT	PAPER NUMBER
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1723

DATE MAILED: 11/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding:

**Office Action Summary**

Application No.

10/721,451

Applicant(s)

STOY ET AL.

Examiner

David A. Reifsnnyder

Art Unit

1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 November 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

The disclosure is objected to because of the following informalities: On page 16, line 32 of the specification, "reactor 24" should be changed to ---reactor 10---.

Correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1; the recitation of "a products vessel configured to receive a portion of the liquid components and gases from the overflow outlet" is vague and indefinite as to where the gases came from since a previous recitation in claim 1 claims "a hydrocyclone for receiving a slurry comprising liquid and solid components" and fails to disclose that the slurry comprises gases.

Regarding claim 13; the recitation of "directing separated liquid components and gases through the overflow outlet and into a products vessel" is vague and indefinite as to where the gases came from since a previous recitation in claim 13 claims "introducing a slurry comprising liquid and solid components into a hydrocyclone" and fails to disclose that the slurry comprises gases.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4-8, 11-15, 20-23 and 25 rejected under 35 U.S.C. 102(b) as being anticipated by Stowell.

Regarding claims 1, 4-8, 11 and 12; Stowell teaches a separation apparatus for separating a slurry comprising: a pump; a hydrocyclone having a slurry inlet connected to the pump, an underflow outlet, an overflow outlet and an inner wall having a circular cross sectional shape; a products vessel in fluid communication with the overflow outlet; a solids vessel including a pressure adjusting means; a conduit between the overflow outlet and the products vessel; and a conduit means between the products vessel and the solids vessel providing fluid communication between the products vessel and the underflow outlet. (Fig. 1 and column 4, line 60 to column 5, line 29)

Regarding claims 13, 14, 20-23 and 25; Stowell discloses a method for separating a slurry, the method comprising: introducing a slurry comprising liquids, solids and gases into a hydrocyclone at an elevated pressure, the hydrocyclone having an underflow outlet and an overflow outlet; directing separated liquid components and gases through the overflow outlet and into a products vessel; directing a solids-enriched slurry through the underflow outlet and into a solids vessel; adjusting pressure within the solids vessel; and providing fluid communication between

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the products vessel and the underflow outlet by providing fluid communication between the products vessel and the solids vessel. (Fig. 1 and column 4, line 60 to column 5, line 29)

Claims 1-8,10-14 and 16-25 rejected under 35 U.S.C. 102(b) as being anticipated by Robinson.

Regarding claims 1-8,11 and 12; Robinson teaches a separation apparatus for separating a slurry comprising: a pump; a hydrocyclone having a slurry inlet connected to the pump, an underflow outlet, an overflow outlet and an inner wall having a circular cross sectional shape; a products vessel in fluid communication with the overflow outlet; a solids vessel including a pressure adjusting means; a conduit between the overflow outlet and the products vessel; a conduit means between the products vessel and the solids vessel means; and a housing including a pressure adjusting means enclosing the hydrocyclone and the products vessel; wherein the conduit means and housing providing fluid communication between the products vessel and the underflow outlet. (Fig. 1 and column 3, line 3 to column 4, line 50) In addition, regarding claim 10 it is considered that it would have been obvious to one having ordinary skill in the art at the time of the invention to have Robinson's slurry inlet connected to a reactor since a reactor is a common vessel for producing a slurry. One other thing, regarding claim 12 it is considered that it would have been obvious to one having ordinary skill in the art at the time of the invention to have Robinson's slurry inlet connected to a pump since it is well known in the art to pump a slurry through a hydrocyclone.

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Regarding claims 13,14 and 16-25; Robinson discloses a method for separating a slurry, the method comprising: introducing a slurry comprising liquid, solids and gases into a hydrocyclone at an elevated pressure, the hydrocyclone having an underflow outlet and an overflow outlet; directing separated liquid components and gases through the overflow outlet and into a products vessel; directing a solids-enriched slurry through the underflow outlet and into a solids vessel, the pressure in the solids vessel being about the same pressure as the elevated pressure in the hydrocyclone; providing fluid communication between the products vessel and the underflow outlet by enclosing the hydrocyclone and products vessel in a common housing; and adjusting the pressure within the housing. (Fig. 1 and column 3, line 3 to column 4, line 50)

Claims 1, 4-8,11-14,20-23 and 25-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Engel et al.

Regarding claims 1, 4-8,11 and 12; Engel et al. teaches an apparatus for separating a slurry, comprising: a pump; a hydrocyclone having a slurry inlet connected to the pump, an underflow outlet, an overflow outlet and an inner wall having a circular cross sectional shape; a reactor/products vessel in fluid communication with the overflow outlet; a solids vessel including a pressure adjusting means; a conduit between the overflow outlet and the products vessel; and a conduit means between the reactor/products vessel and the solids vessel providing fluid communication between the reactor/products vessel and the underflow outlet. In addition, regarding claim 12 it is considered that it would have been obvious to one having ordinary skill in the art at

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the time of the invention to have Robinson's slurry inlet connected to a pump since it is well known in the art to pump a slurry through a hydrocyclone. (Fig. 2; column 6, lines 44-48; and column 8 lines 8-64)

Regarding claims 13, 14, 20-23 and 25-27; Engel et al. discloses a method for separating a slurry, the method comprising: introducing a slurry comprising liquid, solids and gases into a hydrocyclone at an elevated pressure of at least 250 psig and an elevated temperature of between about 250° F and about 600° F, the hydrocyclone having an underflow outlet and an overflow outlet; directing separated liquid components and gases through the overflow outlet and into a products vessel; directing a solids-enriched slurry through the underflow outlet and into a solids vessel; adjusting pressure within the solids vessel; and providing fluid communication between the products vessel and the underflow outlet by providing fluid communication between the products vessel and the solids vessel. (Fig. 2; column 6, lines 44-48; and column 8 lines 8-64)

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stowell or Robinson or Engel et al. in view of Hayatdavoudi.

Regarding claims 9 and 15; Stowell, Robinson or Engel et al. all disclose a separation apparatus and method as disclosed above but fail to disclose that the size of their hydrocyclones underflow outlet is adjustable. Regarding claims 9 and 15; Hayatdavoudi discloses on column 6, lines 48-57 a separation apparatus and method for separating a slurry comprising a hydrocyclone with an underflow outlet, wherein the size of the underflow outlet is adjustable. It is considered that it would have been obvious to one having ordinary skill in the art at the time of the invention for the size of Stowell, Robinson or Engel et al. underflow outlets to be adjustable as taught by



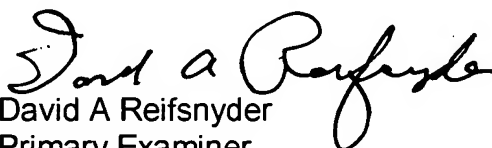
Hayatadavoudi, in order to allow for a more efficient flow rate through Stowell's, Robinson's or Engel et al.'s hydrocyclones.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Reifsnyder whose telephone number is (571) 272-1145. The examiner can normally be reached on M-F 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda M. Walker can be reached on (571) 272-1151. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
David A Reifsnyder  
Primary Examiner  
Art Unit 1723

DAR